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was much influenced by the teachings of the Stoics. "I would strongly advise you," said he to a friend, "to get hold of the thoughts of Marcus Aurelius, when you are most provoked or vexed in spirit, and take their lessons to heart. Epictetus will do equally well, only I think Marcus is calculated to humble and content a man." His letters contain many expressions of trust in an infinite beneficence, and he would have agreed with Epictetus as to "whither dost thou tend after death, that is to nothing dreadful, but to a place from whence thou camest, to things friendly and akin to thee."

We admire Ryder not so much for what he accomplished as for the indomitable spirit that actuated him. With imperfect equipment, with engrossing occupation, and—for much of his intellectual life at least—with impaired health, he attempted the solution of the most difficult problems. It is not for us to consider in what degree he succeeded. Had Bacon, Franklin or Darwin died at forty-three, or had their days been absorbed as his had been, in cares and the routine of task work, how much less would have been their achievments! It is enough for us to know that we are studying in Ryder's life phenomena of a mind of the first order, and that we have lost by his death one of the brightest of the group of workers to which he belonged.

THE PUBLISHED SCIENTIFIC PAPERS OF JOHN A. RYDER.

BY H. F. MOORE, PH. D.

This bibliography was originally prepared for the Proceedings of the Ryder Memorial Meeting but the committee having that publication in charge pointed out that the importance of Dr. Ryder's work demanded for it greater publicity than that medium would afford. It was suggested that it would be most fitting to publish it with the preceding memoir.

The list of papers given is supposed to be complete, being prepared partly from memoranda left by Dr. Ryder and partly by research in the bibliographies of the *Zoological Record* and of the several journals as well as in the sources of original publication.

The citations, with one or two exceptions, have been verified, and the appended notes are partly from the *Zoological Record,* partly Dr. Ryder's and partly by the compiler. The list is given under three heads: Original Research, comprising 215 titles; Descriptions of New Scientific Apparatus, 4 titles; and Translations and Reviews, 59 titles; a grand total of 278 papers published between 1877 and 1895.

ORIGINAL RESEARCH.

1—On the laws of digital reduction. Amer. Nat., Oct., 1877, pp. 603–607. (Points out the modes of modification of the digits in response to the methods of use in the different forms of mammalia).

2—On the evolution and homologies of the incisors of the horse. Proc. Acad. Nat. Sci. Phila., 1877, pp. 152–154, 4 figs. in text. (Traces the history of the "pit" or "mark" in the incisors from the early equine forms to the existing domestic horse).

3—Note on the color variation in mammals. Proc. Acad. Nat. Sci. Phila., 1877, pp. 272–273. (Discusses the probable causes which lead to a disturbance of the symmetry of coloration observed in wild animals when brought under the influence of domestication, assigning as that cause the protection which they receive under the latter, as a result of which asymmetrical and parti-colored individuals are protected and preserved to perpetuate their peculiarities, wild individuals of that character the more readily becoming the prey of enemies).

4—On the growth of Cocculus indicus. Proc. Acad. Nat. Sci. Phila., 1877, pp. 284–285. (Points out the habit or tendency of the terminal part of the newer apical growth to twine).

5—The significance of the diameters of the incisors in rodents. Proc. Acad. Nat. Sci. Phila., 1877, pp. 314–318, 1 fig. in text. (Points out the fact that the greatest diameter is in the line of greatest stress and is correlated with increased use).

6—A dog with supernumerary toes. Proc. Acad. Nat. Sci., Phila., 1877, p. 321.

7—On the mechanical genesis of tooth forms. Proc. Acad. Nat. Sci. Phila., 1878, pp. 45-80, 11 figs. in text. (This paper points out for the first time the correlation existing between the forms of the crowns of the teeth in the various groups of mammalia and the manner and direction in which the jaws are used to bring stress upon the teeth).

8—On *Polyxenes fasciculatus.* Proc. Acad. Nat. Sci. Phila., 1878, p. 223.

9—Description of a new species of *Smynthurus.* Proc. Acad. Nat. Sci. Phila., 1878, p. 335, 1 fig. in text. *Smynthurus quadrimaculatus* sp. nov.

10—On the form of the stapes in *Dipodomys.* Amer. Nat., 1878, p. 125.

11—On like mechanical (structural) conditions as producing like morphological effects. Amer. Nat., 1878, pp. 157–160.

12—Discovery of two remarkable genera of minute myriapods in Fairmount Park (*Polyxenes* and *Pauropus*). Amer. Nat., 1878, pp. 557–558.

13—Bees gathering honey from the *Catalpa.* Amer. Nat., 1879, p. 648.

14—A monstrous frog. Amer. Nat., 1878, pp. 751–752.

15—The mechanical genesis of tooth forms. Dental Cosmos, XX, 1878, pp. 465–472. Abstract by Dr. C. N. Pierce of "On the mechanical genesis of tooth forms." Proceedings of the Academy of Natural Sciences of Philadelphia, 1878, pp. 45–80, 3 figs.

16—Addenda to etiological views expressed in a paper "On the mechanical genesis of tooth forms." Dental Cosmos, XX, 1878, pp. 472–474.

17—The gigantic extinct armadillos and their peculiarities, with a restoration. Popular Science Monthly, XIII, 1878, pp. 139–145, 4 figs. in text. (Discusses the mechanical genesis, degeneration and coalescence of vertebral centra).

18—Morphological notes on the limbs of the Amphiumidæ as indicating a possible synonymy of the supposed genera. Proc. Acad. Nat. Sci. Phila., 1879, pp. 14–15. (Points out the variation in the number of digits in the same specimen, rendering the genus *Murænopsis* untenable).

19—Further notes on the mechanical genesis of tooth forms. Proc. Acad. Nat. Sci. Phila., 1879, pp. 47–51, 1 fig. in text.

20—Notice of a new pauropod. Proc. Acad. Nat. Sci. Phila., 1879, p. 139.

21—Description of a new species of *Chirocephalus*. Proc. Acad. Nat. Sci. Phila., 1879, pp. 148–149, 3 figs. in text. (*Chirocephalus holmanii* sp. nov.).

22—Honey glands on *Catalpa* leaves. Proc. Acad. Nat. Sci. Phila., 1879, p. 161.

23—The larva of *Eurypauropus spinosus*. Proc. Acad. Nat. Sci., 1879, p. 164.

24—Description of a new branchipod. Proc. Acad. Nat. Sci. Phila., 1879, pp. 200–202, 1 fig. (*Streptocephalus sealii*, sp. nov.).

25—The gemmule vs. the plastidule as the ultimate physical unit of living matter. Amer. Nat., 1879, pp. 12–20.

26—On the origin of bilateral symmetry and the numerous segments of the soft rays of fishes. Amer. Nat., 1879, pp. 41–43.

27—Ryder on the mechanical genesis of tooth forms. Amer. Nat., 1879, pp. 446–449. (Abstract with comments by Prof. E. D. Cope, of "On the mechanical genesis of tooth forms." Proc. Acad. Nat. Sci. Phila., 1878, pp. 45–80. And "Further notes on the mechanical genesis of tooth forms." Loc. cit., 1879, pp. 47–51).

28—On the destructive nature of the boring sponge, with observations on its gemmules or eggs. Amer. Nat., 1879, pp. 279–283.

29—Strange habitat of a barnacle on a garpike. Amer. Nat., 1879, p. 453. (*Platylepas decorata* Darw. on *Lepidosteus*).

30—An account of a new genus of minute pauropod myriapods (*Eurypauropus spinosus*). Amer. Nat., 1879, pp. 603–612, 1 pl. and 2 figs. in text. (Eurypauropodidæ, fam. nob. *Eurypauropus spinosus* gen. et. sp. nov.).

31—Successive appearance of *Chirocephalus* and *Streptocephalus* in the same pond. Amer. Nat., 1879, p. 703.

32—A third locality for *Eurypauropus.* Amer. Nat., 1879, pp. 703–704.

33—A probable new species of *Phytoptus* or Gall-mite. Amer. Nat., 1879, pp. 704–705, 1 fig. in text.

34—The psorosperms found in *Aphredoderus sayanus.* Amer. Nat., 1880, pp. 211–212, 6 figs. in text.

35—*Scolopendrella* as the type of a new order of articulates. Amer. Nat., 1880, pp. 375–376 (Symphyla).

36—Note on a larval *Lithobius*-like myriapod. Amer. Nat., 1880, p 376.

37—*Trichopetalum.* Amer. Nat., 1880, p. 376.

38—*Ichthydium ocellatum.* Amer. Nat., 1880, p. 674.

39—On the course of the intestine in the oyster. Amer. Nat., 1880, pp. 674–675.

40—Phosphorescence of very young fishes. Amer. Nat., 1880, p. 675.

41—On the occurrence of *Freia producta* Wright in the Chesapeake Bay. Amer. Nat., 1880, pp. 810–811.

42—*Rhipidodendron splendidum.* Amer. Nat., 1880, p. 811. (The first notice of this monad in American fresh-waters).

43—A pale variety of *Polyxenes fasciculatus.* Amer. Nat., 1880, pp. 811–812.

44—On *Camaraphysema,* a new type of sponge. Proc. U. S. Nat. Mus., III, 1880, pp. 269–272, 1 pl. (*Camaraphysema obscura* gen. et sp. nov.).

45—List of the North American species of myriapods belonging to the family of the Lysiopetalidae, with a description of a blind form from Luray Cave, Virginia. Proc. U. S. Nat. Mus., III, 1880, pp. 524–529. (Describes *Zygonopus whitei,* gen. et sp. nov.).

46—The structure, affinities and species of *Scolopendrella.* Proc. Acad. Nat. Sci. Phila., 1881, pp. 79–86, 2 figs. in text. (*Scolopendrella gratiae* sp. nov.).

47—Occurrence of the same species of Protozoon on both sides of the Atlantic. Proc. Acad. Nat. Sci. Phila., 1881, pp. 442–443. (The first record of the occurrence of *Licnophora cohnii* Clap. on the west side of the Atlantic).

48—A valuable edible Mollusk of the West Coast. Bull. U. S. Fish Comm., 1, 1881, p. 21.

49—Preliminary notice of the more important scientific results obtained from a study of the embryology of Fishes. Bull. U. S. Fish Comm., 1, 1881, pp. 22–23.

50—Notes on the development, spinning habits and structure of the four-spined stickleback (*Apeltes quadracus*). Bull. U. S. Fish Comm., 1, 1881, p. 24–29. (Points out the existence of a pouch in the male which supplies a viscid material to be drawn out into threads which are wound around plants to form a nest. This paper gives the first intimation of the true source of the material of which nests of the Gasterosteidae are woven).

51—Development of the spanish mackerel (*Cybium maculatum*). Bull. U. S. Fish. Comm., 1, 1881, pp. 135–172, 4 pls.

52—On the retardation of the development of the ova of the shad (*Alosa sapidissima*), with observations on the egg fungus and bacteria. Bull. U. S. Fish Comm., 1, 1881, pp. 177–190. Including an appendix on the histological rationale of retardation, also in Rep. U. S. Comm. Fish and Fisheries, 1881, pp. 795–811. (2d ed. revised).

53—A contribution to the development and morphology of the lophibranchiates (*Hippocampus antiquorum*, the sea-horse). Bull. U. S. Fish Comm., 1, 1881, pp. 191–199, 1 pl.

54—The micropyle of the egg of the white perch. Bull. U. S. Fish Comm., 1, 1881, p. 282.

55—Development of the silver gar (*Belone longirostris*), with observations on the genesis of the blood in embryo fishes, and a comparison of fish ova with those of other vertebrates. Bull. U. S. Fish Comm., 1, 1881, pp. 283-301, 3 pls.

56—On the nuclear cleavage-figures developed during the segmentation of the germinal disk of the egg of the salmon. Bull. U. S. Fish Comm., 1, 1881, pp. 335–339, 1 pl.

57—Notes on the breeding, food and green color of the oyster. Bull. U. S. Fish Comm., 1, 1881, pp. 403–419.

58—Additional observations on the retardation of the development of the ova of the shad. Bull. U. S. Fish Comm., 1, 1881, pp. 422–424.

59—The protozoa and protophytes considered as the primary or indirect source of the food of fishes. Bull. U. S. Fish Comm., 1, 1881, pp. 236–251; and Rep. U. S. Comm. Fish and Fisheries, 1881, pp. 755–770. (2d ed. revised).

60—Notes on some of the early stages of development of the clam, or mannanose (*Mya arenaria* Linn.). Report of T. B. Ferguson, a Commissioner of Fisheries of Maryland, for 1881, pp. 81–91, 11 figs.

61—An account of experiments in oyster-culture and observations relating thereto, made at St. Jerome's Creek, Md., during the summer of 1880. Report of T. B. Ferguson, a Commissioner of Fisheries of Maryland for 1881, 15 figs. in text. Appendix A., pp. 1–64 and 76–80 (First Series).

62—Structure and ovarian incubation of the top minnow (*Zygonectes*). Forest and Stream, Aug. 18, 1881. (The species was afterwards determined to be *Gambusia patruelis*, and the subject was treated of more fully in No. 65 of this bibliography).

63—Incubation of shad eggs in brackish or sea-water. Seaworld, Fishing Gazette and Packer's Journal, Wednesday, Oct. 12, 1881.

64—Observations on the species of planarians parasitic on *Limulus*. Amer. Nat., 1882, pp. 48-51, 10 figs. in text, of egg-capsules, embryos and adult.

65—Structure and ovarian incubation of *Gambusia patruelis*, a top-minnow. Amer. Nat., 1882, pp. 109–118. (Describes the mode of viviparous development of the species and points out the early absence of an egg membrane and the existence of an opening in the ovarian follicle comparable to a micropyle).

66—Additional note on the egg-cases of planarians ectoparasitic on *Limulus*. Amer. Nat., 1882, p. 142–143.

67—Synopsis of the Scolopendrellidae. Proc. U. S. Nat. Mus., V, 1882, p. 234. Old genus *Scolopendrella* subdivided into 1. *Scutigerella* gen. nov. sp. 1, *S. gratiae* Ryder.; sp. 2, *S. immacalata* Newport. 2. *Scolopendrella* Gerv. sp. 1, *microcalpa* Muhr; sp. 2, *notacantha* Gerv.

68—A contribution to the embryography of osseous fishes, with special reference to the development of the cod, *Gadus morrhua*. Rep. of U. S. Comm. of Fish and Fisheries, 1882, pp. 455–605, 12 plates, 11 figs. in text.

69—Preliminary notice on some points in the minute anatomy of the oyster. Bull. U. S. Fish Comm., II, 1882, pp. 135–137. (Points out the almost complete absence of connective tissues in the body-mass of the young "spat").

70—Observations on the absorption of the yelk, the food, feeding and development of embryo fishes, comprising some investigations conducted at the Central Hatchery, Armory Building, Washington, D. C., in 1882. Bull. U. S. Fish Comm., II, 1882, pp. 179–205, 1 fig. in text.

71—The microscopic sexual characteristics of the American, Portuguese and common edible oyster of Europe compared. Bull. U. S. Fish Comm., II, 1882, pp. 205–215. Reprinted in Ann. Mag. Nat. Hist., Vol. XII, 1883, pp. 37–48.

72—Note on the organ of Bojanus in *Ostrea virginica* Gmelin. Bull. U. S. Fish Comm., II, 1882, pp. 345–347.

73—On the mode of fixation of the fry of the oyster. Bull. U. S. Fish Comm., II, 1882, pp. 383-387, 1 pl. (Points out the uniformity with which fixation of the fry occurs by the edge of the left mantle border, etc.).

74—On the preservation of embryonic materials and small organisms, together with hints upon embedding and mounting sections serially. Rep. U. S. Comm. Fish and Fisheries, 1882, pp. 607–629.

75—An account of experiments in oyster culture and observations relating thereto. (Second Series). Rep. U. S. Comm. Fish and Fisheries, 1882, pp. 763–778. (Journal of experiments conducted at St. Jerome's Creek, Md., in 1882. Mode of fixation of oyster spat determined).

76—The metamorphosis and post-larval stages of development of the oyster. Rep. U. S. Comm. Fish and Fisheries, 1882, pp. 779–791, 3 figs. in text. (Points out the mode in which the veliger of *Ostrea* is metamorphosed into the spat and adult, and the rotation of the body mass).

77—Supplementary note on the coloration of the blood-corpuscles of the oyster. Rep. U. S. Comm. Fish and Fisheries, 1882, pp. 801–

805. (Shows that the pigment which causes the coloration is probably phycocyanin).

78—A summary of recent progress in our knowledge of the culture, growth and anatomy of the oyster. Forest and Stream, Nov. 30, 1882, Vol. XIX, pp. 351–352.

79—Notes on the breeding, food and cause of green color of the oyster. Trans. Amer. Fish Cult. Assoc. Eleventh Ann. Meet., N. Y., 1882, pp. 57–59. Also Forest and Stream, 1882, May 25th, pp. 331 and 332, and June 1st, pp. 349–351.

80—On the green color of the oyster. Amer. Nat., 1883, pp. 86–88.

81—A correction. Amer. Nat., 1883, pp. 98–99.

82—Theodore Gill and John A. Ryder. Diagnoses of new genera of nemichthyoid eels. Proc. U. S. Nat. Mus., VI, 1883, pp. 260–262.

83—Theodore Gill and John A. Ryder. On the anatomy and relations of the Eurypharyngidae. Proc. U. S. Nat. Mus., VI, 1883, pp. 262–273.

84—On the thread-bearing eggs of the silversides (*Menidia*). Bull. U. S. Fish Comm., III, 1883, pp. 193–196, 4 figs. in text.

85—Preliminary notice of the development and breeding habits of the Potomac cat-fish *Amiurus albidus* (Le Sueur) Gill. Bull. U. S. Fish Comm., III, 1883, pp. 225–230.

86—Rearing oysters from artificially fertilized eggs, together with notes on pond-culture, etc. Bull. U. S. Fish Comm., III, 1883, pp. 281–294. New Zealand Journal of Science, I, No. 10, 1883, pp. 455–459.

87—Report on the abnormal appearance of some shad eggs from a fish kept in confinement at Havre de Grace, Maryland. Bull. U. S. Fish Comm., III, 1883, p. 440.

88—Rearing oysters from artificially impregnated eggs. Science, I, 1883, pp. 60–62.

89—The law of nuclear displacement, and its significance in embryology. Science, I, 1883, pp. 273–277.

90—Protozoan parasites of the oyster. Science, I, 1883, pp. 567–568.

91—Rearing oysters from artificially fertilized eggs at Stockton, Md. Science, II, 1883, pp. 463–464.

92—Primitive visual organs. Science, II, 1883, pp. 739–740.

93—The nature of heredity. The Monthly Review, Philadelphia, I, 1883, No. 11, pp. 161–164.

94—The pedunculated lateral line organs of *Gastrostomus*. Science, III, 1884, p. 5. Amer. Nat., 1884, p. 547, 1 fig.

95—On the chlorophylloid granules of *Vorticella*. Proc. U. S. Nat. Mus., VII, 1884, pp. 9–12, 1 fig. in text.

96—Theodore Gill and John A. Ryder: On the literature and systematic relations of the saccopharyngoid fishes. Proc. U. S. Nat. Mus., VII, 1884, pp. 48–65.

97—On the origin of heterocercy and the evolution of the fins and fin-rays of fishes. Rep. U. S. Comm. Fish and Fisheries, 1884, pp. 981–1107, pls. 12, 8 figs. in text.

98—On a new form of filter or diaphragm to be used in the culture of oysters in ponds. Bull. U. S. Fish Comm., IV, 1884, pp. 17–31, 1 pl.

99—On a skin parasite of the cunner (*Ctenolabrus adspersus*). Bull. U. S. Fish Comm., IV, 1884, pp. 37–42.

100—Journal of operations on the grounds of the Eastern Shore Oyster Company on Chincoteague Bay, near Stockton, Md., during the summer of 1883. Bull. U. S. Fish Comm., IV, 1884, pp. 43–47.

101—Carp do eat young fishes. Bull. U. S. Fish Comm., IV, 1884, p. 152.

102—Report respecting the present condition and future prospects at St. Jerome Creek for the work of oyster culture. Bull. U. S. Fish Comm., IV, 1884, pp. 235–237.

103—Floats for the so-called fattening of oysters. Bull. U. S. Fish Comm., IV, 1884, pp. 302–303.

104—Note on the regeneration of the scales of the German carp. Bull. U. S. Fish Comm., IV, 1884, pp. 345–346.

105—On apparatus for collecting oyster spat. Bull. U. S. Fish Comm., IV, 1884, p. 373.

106—Care of gold fish. Bull. U. S. Fish Comm., 1884, pp. 381–382.

107—A sketch of the life history of the oyster. U. S. Geological Survey. Fourth Annual Report of J. W. Powell for 1884, IV, pp. 317–333. pls. LXXIII-LXXXII.

108—On the development of *Mola*. Science, IV, Bulletin, Nov. 14, 1884, p. v.

109—On the morphology and evolution of the tail of osseous fishes. (Abstract). Proc. American Association for the Advancement of Science, Philadelphia meeting, Sept., 1884, Vol. XXXIII, pp. 532–533, 1885. Science, IV, Oct. 31, 1884, pp. 341–342.

110—Theodore Gill and John A. Ryder: Note on *Eurypharynx* and an allied new genus. Zool. Anzeiger, VII, 1884, pp. 119–123.

111—On the forces which determine the survival of fish embryos. Forest and Stream, Aug. 14, 1884; and Transactions of American Fish Cultural Association, 13th Annual Meeting at Washington, May 13th and 14th, 1884, pp. 195–199.

112—A contribution to the life-history of the oyster (*Ostrea virginica* Gmelin, and *O. edulis* Linn.). Fisheries Industries of the U. S., Vol. II, 4 to, Washington, 1884, 1 pl. pp. 711–750.

113—An outline of a theory of the development of the unpaired fins of fishes. Amer. Nat., 1885, pp. 90–97, (abstract), 8 figs. in text.

114—The development of the rays of osseous fishes. Amer. Nat., 1885, pp. 200–204.

115—On the translocation forwards of the rudiments of the pelvic fins of the embryos of physoclist fishes. Amer. Nat., 1885, pp. 315–317.

116—On the position of the yolk-blastopore as determined by the size of vitellus. Amer. Nat., 1885, pp. 411–415.

117—Development of the spines of the anterior dorsal of *Gasterosteus* and *Lophius*. Amer. Nat., 1885, p. 415.

118—On the probable origin, homologies and development of the flukes of cetaceans and sirenians. Amer. Nat., 1885, pp. 515–519.

119—On the formation of the embryonic axis of the teleostean embryo by the concrescence of the rim of the blastoderm. 1 fig. in text. Amer. Nat., 1885, pp. 614–615.

120—On the development of the mammary glands of cetacea. Amer. Nat., 1885, pp. 616–618.

121—On the availability of embryological characters in the classification of the Chordata. Amer. Nat., 1885, pp. 815–819 and 903–907.

122—On the genesis of the extra terminal phalanges in the cetacea. Amer. Nat., 1885, pp. 1013–1015.

123—On the manner in which the cavity of the heart is formed in certain teleosts. Amer. Nat,, 1885, pp. 1015–1017.

124—The archistome theory. Amer. Nat., 1885, pp. 1115–1121.

125—The development and structure of *Microhydra Ryderi* Potts. Amer. Nat., 1885, pp. 1232–1236.

126—An exposition of the principles of a rational system of oyster culture, together with an account of a new and practical method of obtaining oyster spat on a scale of commercial importance. Rep. U. S. Comm. Fish and Fisheries for 1885, pp. 381–423, 3 plates.

127—On the development of the cetacea, together with a consideration of the probable homologies of the flukes of cetaceans and sirenians. Rep. Comm. Fish and Fisheries 1885, pp. 427–488, 3 plates.

128—On the development of osseous fishes, including marine and freshwater forms. Rep. Comm. of Fish and Fisheries, 1885, pp. 489–604, 30 plates.

129—Note on the male organs of the eel. Bull. U. S. Fish Comm., V, 1885, 2 figs. in text, pp. 1–3.

130—Directions for collecting embiotocoid fish embryos. Bull. U. S. Fish Comm., V, 1885, p. 32.

131—The rate of growth of oysters at St. Jerome Creek Station. Bull. U. S. Fish Comm., V, 1885, pp. 129–131, 2 figs. in text.

132—On the development of the mammary glands and genitalia of the cetacea. Bull. U. S. Fish Comm., V, 1885, pp. 135–142, 2 figs in text.

133—On the rate of growth of the common clam, and on a mode of obtaining the young of the giant clams of the Pacific Coast for the purpose of transplanting. Bull. U. S. Fish Comm., V, 1885, pp. 174–176.

134—On the green coloration of the gills and palps of the clam (*Mya arenaria*). Bull. U. S. Fish Comm., V, 1885, pp. 181–185, 1 fig. in text.

135—Answers to questions about fattening oysters. Bull. U. S. Fish. Comm., 1885, p. 416.

136—On the development of viviparous osseous fishes. Proceedings of the U. S. National Museum, VIII, 1885, pp. 128–155, 6 figs.

137—On certain features of the development of the salmon. Proc. U. S. Nat. Mus., VIII, 1885, pp. 156–162, 1 pl.

138—The swimming habits of the sun-fish (*Mola mola*). Science, VI, 1885, pp. 103–104, 1 fig.

139—A new system of oyster-culture. Science, November 27, 1885, pp. 465–467. (A practical solution of the oyster question).

140—On some points in microtomy. The American Monthly Microscopic Journal, V, No. 10, October, 1884, pp. 190–191; Proc. Amer. Assoc. Adv. Sci., XXXIII, 1885, pp. 565–566.

141—The oyster problem actually solved. A new system of oyster culture. Forest and Stream, Vol. XXV, No. 13, Oct. 22d, 1885, pp. 249–250.

142—The nectar glands of the Catalpa tree. The Pastime, III, No. 7, January, 1885, pp. 8-9.

143—Resting position of the oyster. Nature, Nov. 26, 1885, pp. 80-81.

144—The placentation of the two-toed ant-eater *Cycloturus didactylus*. Proc. Acad. Nat. Sci. Phila., 1886. (Cited from Dr. Ryder's notes; original not found).

145—The development of the toad-fish. Amer. Nat., 1886, pp. 77–80.

146—The origin of the amnion. Amer. Nat., 1886, pp. 179–185, 8 figs. in text.

147—The development of *Anurida maritima* Guerin. Amer. Nat., 1886, pp. 299–302, 1 plate.

148—On an unusual relation of the notochord to the intestine in the chick. Amer. Nat., 1886, pp. 392–394, 1 fig.

149—On the symmetry of the first segmentation furrows of the blastodisk of Elasmobranchii. Amer. Nat., 1886, pp. 470–473, 2 figs.

150—The metamorphosis of the American lobster, *Homarus americanus* H. Milne-Edwards. Amer. Nat., 1886, pp. 739–742.

151—The monstrosities observed amongst recently hatched lobsters. Amer. Nat., 1886, pp. 742–743.

152—The development of the mud-minnow. Amer. Nat., 1886, pp. 823–824.

153—The development of *Fundulus heteroclitus*. Amer. Nat., 1886, p. 824.

154—Why do certain fish ova float? Amer. Nat., 1886, pp. 986–987. (Describes the floating egg of *Macropodus*).

155—The origin of the pigment cells which invest the oil-drop in pelagic fish-embryos. Amer. Nat., 1886, pp. 987--988.

156—On the value of the fin-rays and their characteristics of development in the classification of the fishes, together with remarks on the theory of degeneration. Proc. U. S. Nat. Mus., 1886, pp. 71--82.

157--Preliminary notice of the development of the toad-fish *Batrachus tau.* Bull. U. S. Fish Comm., VI, 1886, pp. 4--8, 1 pl.

158—On the earlier stages of cleavage of the blastodisk of *Raia erinacea.* Bull. U. S. Fish Comm., VI, 1886, pp. 8--10, 1 fig. in text.

159—On the intra-ovarian gestation of the red-fish (*Sebastes marinus*). Bull. U. S. Fish Comm., VI, 1886, pp. 92--94.

160—A theory of the origin of placental types and on certain vestigiary structures in the placentæ of the mouse, rat and field-mouse. Amer. Nat., 1887, pp. 780--784.

161—The inversion of the germinal layers in *Hesperomys.* Amer. Nat., 1887, pp. 863--864, 3 figs. in text.

162—Vestiges of a zonary decidua in the mouse. Amer. Nat., 1887, pp. 1037--1038.

163—The rudimentary pineal eye of chelonians. Amer. Nat., 1887, pp. 1126--1127. (By Geo. Fetterolf under Prof. Ryder's directions).

164—On a tumor in the oyster. Proc. Acad. Nat. Sci. Phila., 1887, pp. 25--27.

165—On the homologies and early history of the limbs of vertebrates. Proc. Acad. Nat. Sci. Phila., 1887, pp. 344--368.

166—On the development of the common sturgeon. Amer. Nat., July, 1888, pp. 659--660. (The first published account of the larvæ of *Acipenser sturio* developed from artificially fertilized eggs obtained by Cæsarian section of the abdomen of the female).

167—On the blunt-nosed sturgeon and the sense organs and canals of the head of *Serranus atripinnis.* University Medical Magazine (Philadelphia), December, 1888, pp. 175--177.

168—The sturgeons and sturgeon industries of the eastern coast of the United States, with an account of experiments bearing upon sturgeon culture. Bull. U. S. Fish Comm., 1888, pp. 231–281, plates XXXVII–LIX.

169—Report of operations at the laboratory of the United States Fish Commission, Wood's Hole, Mass., during the summer of 1888. Rep. U. S. Fish Comm., 1888, pp. 513--522.

170—On the fore and aft poles, the axial differentiation and a possible anterior sensory apparatus of *Volvox minor.* Proc. Acad. Nat. Sci. Phila., 1889, pp. 138--140. Reprint in Ann. and Mag. Nat. Hist. (6), IV, p. 253.

171—Heterocercy in batrachia. Proc. Acad. Nat. Sci. Phila., 1889, p. 155. (In *Amblystoma* larvæ).

172—The hypertrophied hairs on *Ampelopsis.* Proc. Acad. Nat. Sci. Phila., 1889, p. 158.

173—The byssus of the young of the common clam (*Mya arenaria*). Amer. Nat., 1889, pp. 65--67 ; abstr. in Jour. Roy. Mic. Soc., 1889, p. 375. (The byssus gland is at the base of the foot and the clams are bound together partially by byssus threads and partly by fibres from Ascidians).

174—The polar differentiation of *Volvox* and specialization of possible anterior sense organs. Amer. Nat., 1889, pp. 218--221.

175—The quadrate placenta of the common red squirrel. Amer. Nat., 1889, pp. 271–274.

176—The origin and meaning of sex. Amer. Nat., 1889, pp. 501–508.

177—Notes on the development of *Ampullaria depressa* Say. Amer. Nat., 1889, pp. 735–737. (Description of eggs, etc.).

178—Karyokinesis in larval *Amblystoma*. Amer. Nat., 1889, pp. 827–829. (Pointing out the clearness of the karyokinetic processes).

179—On a brood of larval *Amphiuma*. Amer. Nat., 1889, pp. 927–928.

180—The acquisition and loss of food-yolk and origin of the calcareous egg-shell. Amer. Nat., 1889, pp. 928–933. (Interpretation of the various ways in which surplus nutriment is elaborated into numerous small eggs or into fewer and larger ones, or diverted to the embryo itself).

181—The phylogeny of the sweat glands. Proc. Amer. Phil. Soc., 1889, pp. 534–540.

182—Proofs of the effects of habitual use in the modification of animal organisms. Proc. Amer. Phil. Soc., 1889, pp. 541–549. (The principle of over-nutrition was at once the cause of sexuality, the struggle for existence and the direct means of evolution of all larval forms. Over-nutrition, resulting in sexuality, was the means of heaping up potential physiological energy in the egg, so as to render larval development and a larval struggle for existence a possibility. The mainspring of evolution or its motive force is to be sought in sexuality).

183—A physiological theory of the calcification of the skeleton. Proc. Amer. Phil. Soc., 1889, pp. 550–558.

184—Evolution of the specialized vertebral axis of the higher types. University Med. Mag., April, 1889.

185—The function and histology of the yolk-sac of the young toad-fish (*Batrachus tau*). Proc. Acad. Nat. Sci. Phila., 1890, pp. 407–408.

186—A physiological hypothesis of heredity and variation. Amer. Nat., 1890, pp. 85–92.

187—The continuity of the primary matrix of the scales and the actinotrichia of teleosts. Amer. Nat., 1890, pp. 489–491.

188—The eye, ocular muscles and lachrymal glands of the shrew mole (*Blarina talpoides* Gray). Proc. Amer. Phil. Soc., 1890, pp. 16–18. (Calling attention, among other points, to the slight attachment of the eye-ball and the great development of the lachrymal gland).

189—The origin of sex through cumulative integration and the relation of sexuality to the genesis of species. Proc. Amer. Phil. Soc., 1890, pp. 109–159.

190—On the kinds of motion in the ultimate units of contractile living matter. Proc. Amer. Assoc. Adv. Sci., Vol. XL, 1891, p. 328.

191—On two new and undescribed methods of contractility manifested by filaments of protoplasm. Proc. Acad. Nat. Sci., Phila., 1891, pp. 10–12. (Fixed and reversible spiral contraction in *Vorticella* and in *Trypanosoma balbianii* respectively).

192—An attempt to illustrate some of the primary laws of mechanical evolution. Proc. Acad. Nat. Sci. Phila., 1891, pp. 62–70.

193—Sherwood and Ryder. Abnormal duplication of urosome in *Rana catesbiana.* Amer. Nat., 1891, pp. 740–742. (Remark upon bifid-tailed tadpoles).

194—Notes on the development of *Engystoma.* Amer. Nat., 1891, pp. 838–840.

195—On the mechanical genesis of the scales of fishes. Proc. Acad. Nat. Sci. Phila., 1892, pp. 219–224, 3 figs. Reprint in Ann. & Mag. Nat. Hist., XI, pp. 243–248.

196—Diffuse pigmentation of the epidermis of the oyster due to prolonged exposure to the light; regeneration of shell and loss of adductor muscle. Proc. Acad. Nat. Sci. Phila., 1892, pp. 350–351. (Recording observations of Prof. R. C. Schiedt).

197—Hermaphroditism and viviparity of the oysters of the northwest coast of the United States. Proc. Acad. Nat. Sci. Phila., 1892, pp. 351–352. (Recorded in behalf of Prof. R. C. Schiedt).

198—On the cause of the greening of the oyster and its presumed algous endo-parasites. Proc. Acad. Nat. Sci. Phila., 1892, p. 352.

199—The principle of the conservation of energy in biological evolution: a reclamation and critique. Proc. Acad. Nat. Sci. Phila., 1892, pp. 455–468.

200—A geometrical representation of the relative intensity of the conflict between organisms. Amer. Nat., 1892, pp. 923–929.

201—Cholera and flies. Entomological News, Oct., 1892, pp. 210–211. (Reprint from Public Ledger, Phila.).

202—The inheritence of modifications due to disturbances of the early stages of development, especially in the Japanese domesticated races of gold-carp. Proc. Acad. Nat. Sci. Phila,, 1893, pp. 75–94.

203—The vascular respiratory mechanism of the vertical fins of the viviparous Embiotocidae. Proc. Acad. Nat. Sci. Phila., 1893, pp. 95–99, 1 fig.

204—Energy as a factor in organic evolution. Proc. Amer. Phil. Soc., 1893, XXXI, pp. 192–203. (Upon ergogeny, kinetogeny and statogeny, with an appendix giving a list of the author's papers on ergogenetic development of morphological characters—25 titles).

205—The mechanical genesis of the form of the fowl's egg. Proc. Amer. Phil. Soc., 1893, XXXI, pp. 203-209, 1 fig.

206—The adaptive forms and vortex motion of the substance of the red blood-corpuscles of vertebrates. Proc. Amer. Phil. Soc., XXXII, No. 143, May, 1893, pp. 272–275. (Read at the meeting commemorating the 150th anniversary of the foundation of the Society).

207—The correlations of the volumes and surfaces of organisms. Contrib. Zoöl. Lab. Univ. of Penna., Vol. I, No. 1, 1893, pp. 3–36, 1 plate.

208—The growth of *Euglena viridis* when constrained principally to two dimensions of space. Contrib. Zoöl. Lab. Univ. of Penna., Vol. I, No. 1, 1893, pp. 37–50, 1 plate.

209—The synthetic museum of comparative anatomy as a basis for a comprehensive system of research. Contrib. Zoöl. Lab. Univ. of Penn., 1893. Separate, pp. 1–15. (A valuable paper giving an outline of a museum adopted to modern methods of research; now being realized, in part, at the Wistar Institute, Univ. of Penna.).

210—Biological research in relation to the fisheries. Bull. U. S. Fish Comm., 1893, pp. 59–63. (Read before the World's Fisheries Congress, Chicago, 1893).

211—Ryder and Pennington, Mary E. Non-sexual conjugation of the nuclei of the adjacent cells of an epithelium. Anat. Anzeiger, 11, Aug., 1894, pp. 759–764.

212—Dynamical evolution. Biological Lectures Marine Biol. Lab., Vol. II, Boston, 1894.

213—An arrangement of the retinal cells in the eyes of fishes partially simulating compound eyes. Proc. Acad. Nat. Sci. Phila., 1895, pp. 161–166, 2 figs. in text.

214—The true nature of the so-called "nettle-cells" of *Paramoecium*. Proc. Acad. Nat. Sci. Phila., 1895, pp. 167–170.

215—A dynamical hypothesis of inheritence. Biological Lectures Marine Biol. Lab., Vol. III, Boston, 1895.

DESCRIPTIONS OF NEW SCIENTIFIC APPARATUS.

216—Holman's new compressorium and moist chamber. Amer. Nat., 1880, p. 691. Also in Journal of the Franklin Institute.

217—Ryder's automatic microtome. Amer. Nat., 1887, pp. 298–302, 2 figs. (Description of rapid cutting section instrument involving new principles of micrometric adjustment).

218—A new paraffine embedding apparatus. Amer. Nat., 1887, pp. 597–600.

219—A new method of entrapping, killing, embedding and orienting infusoria and other small objects for the microtome. Amer. Nat., 1895, pp. 194–198, 1 fig. in text.

TRANSLATIONS AND REVIEWS.

220—Notes on the recently described monotremes. Amer. Nat., 1878, pp. 320–321.

221—A remarkable new genus of giant sloths. Amer. Nat., 1879, pp. 590–592. (Review of "Beskriivelse af Hovedskallen af et Kaempedovendyr, *Grypotherium darwini,* fra Laplata-Landenes plejstocene Dannelser." Af. J. Reinhardt. in Vidensk. Sel. Skr. 5te Raekke. Naturv. og Math. Afd. XII, 4, 4to pls. II, Kjobenhavn, 1879).

New sub fams. proposed: Aphelorhinæ, Diarhinæ.

222—A new species of *Coelodon.* Amer. Nat., 1879, p. 592. (Review of "Kaempedovendyr Slaegten Coelodon." Af. J. Reinhardt, 4 to p. 257–349, pls. 7. Ext. Vidensk. Selsk. Skr. 5te Raekke, Naturvidensk. og Math. Afd., XII, 3, Copenhagen, 1878).

223—Growth as a function of cells. Amer. Nat., 1880, p. 44–45. (Review of "Growth as a function of cells," by Chas. Sedgwick Minot. Proc. Bos. Soc. Nat. Hist., 1878–79, Vol. XX, pt. II, p. 190).

224—On the genitalia of male eels and their sexual characters, by S. Th. Cattie (Translation). Proc. U. S. Nat. Mus., III, 1880, pp. 280–284.

225—On the mature male sexual organs of the conger-eel (*Conger vulgaris*), with some observations on the male of the common eel (*Anguilla vulgaris*). By Otto Hermes. Bull. U. S. Fish Comm., I, 1881, pp. 126–130. (Translation of "Ueber reife mannliche Geschlechtstheile des Seeaals [Conger vulgaris] und einige Notizen uber den mannlichen Flussaal. Anguilla vulgaris"). Zool. Anzeiger, 1881, No. 74, pp. 39–44).

226—On Semper's method of making dry preparations. Proc. U. S. Nat. Mus., 1881, pp. 224–225.

227—A contribution to our knowledge of the development of the oyster (*Ostrea edulis*), by Dr. R. Horst. Bull. U. S. Fish Comm., II, 1882, pp. 159–167, 12 figs. (Translation of "Bijdrage tot de Kennis van de Ontwikkelingsgeschiedenis van de Oester (*Ostrea edulis*)" in Tijdschr. d. Ned. Dierk. Vereen. dl. VI, 1882). Abstract in Zool. Anzeiger, 3d April, 1882.

228—Report relative to the generation and artificial fecundation of oysters, addressed to the Minister of Marine and Colonies by M. Bouchon-Brandely. Bull. U. S. Fish. Comm., II, 1882, pp. 319–338. (Translation of "Rapport relatif à la génération et à la fécondation artificielle des huitres, addressé au ministre de la marine et des colonies, in Journ. officiel de la Republique Francaise," December 16–17, 1882, pp. 6762–6764 and 6778–6782) with notes by the translator.

229—On the sexuality of the common oyster (*O. edulis*) and that of the Portuguese oyster (*O. angulata*). Artificial fecundation of the Portuguese oyster, by M. Bouchon-Brandely. Bull. U. S. Fish Comm., II, 1882, pp. 339--341. (Translation of "De la sexual-

ité chez l'huître ordinaire [*O. edulis*] et chez l'huître Portugaise (*O. angulata*). Fécondation artificielle de l'huître Portugaise," in Comptes Rendus de L'Academie des Sciences, XCV, No. 5 [31 Juillet, 1882], pp. 256--259, Paris, 1882).

230—Researches on the generative organs of the oyster (*O. edulis*), by P. P. C. Hoek. Bull. U. S. Fish Comm., II, 1882, pp. 343, (Translation of " Recherches sur les organes génitaux des huitres." par M. P. P. C. Hoek, Comptes rendus des seances de l'Academie des Sciences, Paris, November 6, 1882).

231—A simple test to learn if fish ova are impregnated, by Prof. Nussbaum. Bull. U. S. Fish Comm., II, 1882, pp. 347--348. (Translation from Deutsche Fischerei Zeitung, VI, No. 5, Jan. 30, 1883.

232—On the cause of the greening of oysters. Rep. U. S. Comm. Fish and Fisheries, 1882, pp. 793–801. (A translation of "Notice sur la cause du verdissement des huitres." Par M. Puységur, in Rev. Maritime et Coloniale, pp. 11, 1 pl. Paris, Berger-Levrault et Cie, 1880).

233—Development of the membrane-bones of the skull of the pike. Science, I, 1883, p. 513.

234—Oyster culture in Holland. Science, II, 1883, p. 79.

235—The development of the viviparous edible oyster. Amer. Nat., 1885, pp. 317–318. (Review of Dr. Horst's paper).

238—The mode of formation and the morphological value of the eggs of *Nepa* and *Notonecta*. Amer. Nat., 1885, pp. 615–616. (Review of paper by Ludwig Will).

237—The unpaired fins of selachians. Amer. Nat., 1886, pp. 142–143. (Review of paper by Dr. Paul Mayer).

239—The development of *Patella*. Amer. Nat., 1886, pp. 563–564. (Review of paper by Dr. Wm. Patten).

240—Professor Selenka on the development of the opossum (*Didelphys virginiana*). Amer. Nat., 1886, pp. 394–396. (Translation from Biblog. Centralbl., V, No. 10, 1885, pp. 294–295).

241—The development of *Dentalium*. Amer. Nat., 1886, p. 565. (Review of paper by M. Kowalevsky).

242—The development of the Chitonidæ or Polyplacophora. Amer. Nat., 1886, pp. 565–567. (Review of paper by M. Kowalevsky).

243—The development of the gill in *Fasciolaria*. Amer. Nat., 1886, p. 567. (Review of paper by Dr. H. Leslie Osborn).

244—The early development of *Julus terrestris*. Amer. Nat., 1886, pp. 662–666. (Review of paper by F. G. Heathcoat, M. A.).

245—The development of *Agalena naevia*. Amer. Nat., 1886, pp. 666–667. (Review of paper by Wm. A. Locy).

246—Life-history of *Thalessema*. Amer. Nat., 1886, pp. 988–989. (Review of H. W. Conn's paper).

247—The formation of the eggs and development of rotifers. Amer. Nat., 1887, pp. 93–95. (Review of G. Tessin's paper).

248—The gestation of armadillos. Amer. Nat., 1887, pp. 95–96. (Review of von Ihering's paper).

249—The ventral suckers or sucking disks of the tadpoles of different genera of frogs and toads. Amer. Nat., 1887, pp. 263–264. (From Dr. Ryder's notes. Citation not found).

250—Haddon's "Introduction to the Study of Embryology." Amer. Nat., 1887, pp. 292–293.

251—Development of the carnivora. Amer. Nat., 1887, pp. 394–396. (Review of A. Fleischmann's work).

252—Suggestion respecting the epiblastic origin of the segmental duct. Amer. Nat., 1887, pp. 587–590. (Review of Prof. A. C. Haddon's paper).

253—The development of an eight-limbed vertebrate. Amer. Nat., 1887, pp. 862–863. (Review of S. Watase's paper.)

254—Spermatogenesis in mammalia. Amer. Nat., 1887, pp. 946–948. (Review of paper by Dr. Carl Benda).

255—Development of the Coecilians. Amer. Nat., 1887, pp. 1035–1036. (Review of work of Messrs. Sarasin).

256—The origin of the segmental duct in elasmobranchs. Amer. Nat., 1887, p. 1037. (Notice of Dr. Beard's work).

257—Rudiments of true calcified teeth in the young of *Ornithorhynchus*. Amer. Nat., 1888, pp. 368–369. (Review of paper by E. B. Poulton).

258—The ectoblastic origin of the Wolffian duct in the chelonia. Amer. Nat., 1888, p. 369. (Notice of paper by M. Mitsukuri).

259—Origin of the Wolffian duct in lacertilia. Amer. Nat., 1888, p. 369. (Notice of paper by J. von Perenyi).

260—The origin of the mammæ. Amer. Nat., 1888, p. 370. (Note upon investigations of W. Haacke).

261—The several functions of the enamel organ in the development of the teeth of mammals, and on the inheritance of mutilations. Amer. Nat., 1888, pp. 547–550. (Review of researches of von Brunn et al).

262—Researches upon the development of *Comatula*. Amer. Nat., 1888, pp. 657–659. (Review of paper by Barrois).

263—Observations on the development of cephalopods. Amer. Nat., 1888, pp. 754–755. (Review of S. Watase's paper).

264—On the development of the calcareous plates of *Asterias*. Amer. Nat., 1888, p. 755. (Note on J. Walter Fewkes' work).

265—The value in classification of the stages of growth and decline with proposals for a new nomenclature. Amer. Nat., 1888, p. 755. (Note on A. Hyatt's paper).

266—Development of the sea-bass (*Serranus atrarius*). Amer. Nat., 1888, p. 755. (Note).

267—On the primary segmentation of the germ-band of insects. Amer. Nat., 1888, pp. 941–942. (Review of Veit Graber's work).

268—Development of the peripheral nervous system of vertebrates. Amer. Nat., 1888, pp. 1132–1134. (Review of Dr. Beard's work).

269—A new atlas of embryology. Amer. Nat., 1888, p. 1134–1135. (Review of M. Duval's work).

270—New studies of the human embryo. Amer. Nat., 1889, pp. 171–172. (Review of work of M. C. Phisalix).

271—On the development and first traces of the anterior roots of the spinal nerves in selachians. Amer. Nat., 1889, pp. 172–173. (Review of Dohrn's paper).

272—The maturation and fertilization of the egg of *Petromyzon planeri.* Amer. Nat., 1889, p. 173. (Review of A. A. Böhm's paper).

273—The structure of the human spermatozoon. Amer. Nat., 1889, pp. 183–184 (Vol. irregularly paged). (Review of E. M. Nelson's paper).

274—Development of *Crangon vulgaris.* Amer. Nat., 1889, pp. 737–738. (Review of J. W. Kingsley's paper).

275—Development of *Sepia officinalis.* Amer. Nat., 1889, p. 738. (Review of M. L. Vialleton's paper).

276—Extra-ovarian primordial ova in the human embryo. Amer. Nat., 1889, p. 827. (Review of W. Nagel's paper).

277—Placentation of the hedgehog and the phylogeny of the placenta. Amer. Nat., 1890, pp. 376–378. (Review of Hubrecht's paper).

278—"A theory of development and heredity," by Henry D. Orr. Amer. Nat., 1894, pp. 154–156. (Review).